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07/780,455 10/22/91 ASAHINA M PD-8811FWC

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DATE MAILED: 08/26/92

This communication from the examiner in charge is for the use of the
COMMISSIONER OF PATENTS AND TRADEMARKS

- ☒ This application has been examined ☒ Responsive to communication filed on 7/9/92 ☒ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), 0 days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- | | |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 2. <input checked="" type="checkbox"/> Notice re Patent Drawing, PTO-948. |
| 3. <input type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449. | 4. <input type="checkbox"/> Notice of Informal Patent Application, Form PTO-152 |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474. | 6. <input type="checkbox"/> |

Part II SUMMARY OF ACTION

1. ☒ Claims 1-24 are pending in the application.
Of the above, claims 1-22 and 24 are withdrawn from consideration.
2. ☐ Claims _____ have been cancelled.
3. ☐ Claims _____ are allowed.
4. ☒ Claims 23 are rejected.
5. ☐ Claims _____ are objected to.
6. ☐ Claims _____ are subject to restriction or election requirement.
7. ☒ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on _____ Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____ has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed _____, has been ☐ approved; ☐ disapproved (see explanation).
12. ☐ Acknowledgement is made of the claim for priority under U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

EXAMINER'S ACTION

Applicant's election with traverse of invention II, claim 23, in Paper No. 31, dated July 9, 1992 is acknowledged. The traversal is on the ground(s) that claims 1-22 and 24 of upper conductor layer of semiconductor device could be made by forming metal plating layer, thereby excluding the formation of that layer by sputtering or chemical vapor deposition. This is not found persuasive because method of forming the "plated" metal layer is immaterial to the examination of the device claim and applicant have not established that formation of the metal layer by plating as opposed to chemical vapor deposition or sputter deposition renders the present device claims 1-22 and 24 distinct from similar devices formed by chemical vapor or sputtering deposition.

The requirement is still deemed proper and is therefore made FINAL.

The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention

were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Claim 23 is rejected under 35 U.S.C. § 103 as being unpatentable over McDavid previously cited in view of Del Monte. McDavid teaches a metal gate, contact and interconnection system for MOS VLSI device comprises of : gate wiring(11), a substrate having a doped semiconductor region(10), a lower conductor structure(30), and insulating layer(3) overlaying lower conductor structure and it has at least one opening extended to lower conducting structure, and upper structure has at least a layer of metal or metal alloy and a metal layer on and adhering to that layer. Further, McDavid teaches Molybdenum layer 21, the tungsten layer 22 and the gold layer 23 are deposited on top of lower conductor structure tungsten layer, Note, McDavid, column 3, line 56 to column 4, line 2. However, McDavid fails to specify the method of metal deposition. Furthermore, it is pointed out in the parent application by Board of Patent and Appeals and Interferences that word of "deposition" as comprising any known coating technique including sputtering, electro-deposition, electroplating, electroless plating, evaporation, etc., note, paper #21, appeal # 91-2458, page 5, lines 12-30. Del Monte teaches the method of electroplating and electroless plating of gold on metal layer, note, Del Monte, column 10, lines 13-65. It would have been obvious to one of ordinary skill in

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the semiconductor fabrication art to have electroplated or electroless plated in upper conductor structure as taught by Del Monte because plating results in selective deposition.


Furhter, Claim 23 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 23 includes an improper Markush group because "conductive "film" is generic to the enumerated species. A Markush group cannot include genus as well as species of genus.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to H. Jey Tsai whose telephone number is (703)-308-1103.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703)-308-6661.

H. Jey Tsai

8/13/92 *H.J.*


Olik Chaudhuri
Supervisory Patent Examiner
Patent Examining Group 110